

GRAVITY THEORY - THE DETERMINANTS OF IMS-GT ON ECONOMY
GROWTH

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ABSTRAK

GRAVITY THEORY- THE DETERMINANTS OF IMS-GT ON ECONOMIC GROWTH

By

Lim Lian Nee

This study investigates the relationship of macroeconomics performance on the development of IMS-GT in order to achieving integration of globalization. The indicators of GDP per Capita, Foreign Direct Invest (FDI) and Transportation Costs are adopted to examine the relationship between IMS-GT on its investment performance toward economy growth. In this study, purposely explained that determinant variables used to investigate the trade while, the GDP indicated the performance of country growth. The existence of cointegrating vector showed that there's a long run relationship among the variables in this study. In the long run, there are some negative and positive results showed in IMS-GT. Indonesia showed a negative relationship between GDP per Capita and transportation costs toward economy growth. Malaysia do not achieved any long run and short run relationship in this study. Singapore showed a negative relationship between GDP per capita, FDI and Transportation costs toward GDP. In the short run, Singapore achieved bidirectional relationship between GDP per Capita and Foreign Direct Invest (FDI). While Indonesia only achieved unidirectional causality run from transportation costs to GDP.

ABSTRAK

TEORI GRAVITI- PENENTU IMS-GT ON PERTUMBUHAN EKONOMI

Oleh

Lim Lian Nee

Kajian ini mengkaji hubungan prestasi makroekonomi kepada pembangunan IMS-GT untuk mencapai integrasi globalisasi. Petunjuk daripada KDNK per kapita, Invest asing langsung (FDI) dan Pengangkutan Kos diterima pakai untuk mengkaji hubungan antara IMS-GT prestasi pelaburannya ke arah pertumbuhan ekonomi. Dalam kajian ini, sengaja menjelaskan bahawa pembolehubah penentu digunakan untuk menyiasat manakala perdagangan, KDNK menunjukkan prestasi pertumbuhan negara. Kewujudan cointegrating vektor menunjukkan bahawa terdapat hubungan yang jangka panjang antara pembolehubah dalam kajian ini. Dalam jangka masa panjang, terdapat beberapa keputusan yang negatif dan positif menunjukkan di IMS-GT. Indonesia menunjukkan hubungan yang negatif antara KDNK per kapita dan kos pengangkutan ke arah pertumbuhan ekonomi. Malaysia tidak mencapai apa-apa jangka masa yang panjang dan hubungan jangka pendek dalam kajian ini. Singapura menunjukkan hubungan yang negatif antara KDNK per kapita, FDI dan Pengangkutan kos terhadap KDNK. Dalam jangka masa pendek, Singapura mencapai hubungan dwiarah antara KDNK per kapita

dan Invest Langsung Asing (FDI). Manakala Indonesia hanya mencapai sebab-musabab satu arah lari dari kos pengangkutan kepada KDNK.

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LIST OF ABBREVIATIONS

ADF	Augmented Dickey-Fulller
AEC	ASEAN Economic Community
AIC	Akaike Information Criterion
APEC	Asian-Pacific Economic Cooperation
ASEAN	Association of Southeast Asian Nations
BIMP-EAGA	Co-operation of Brunei, Indonesia, Malaysia and Philippines
BRIC	Brazil, Russia, India and China
ECM	Error Correction Model
ECT	Error Correction Term
FDI	Foreign Direct Invest
GDPC	Growth Domestic Product per Capita
GDP	Growth Domestic Product
IMS-GT	Indonesia-Malaysia-Singapore Growth Triangle
IMT-GT	Indonesia-Malaysia-Thailand Growth Triangle
JJ	Johansen and Juselius
MOU	Memorandum of Understanding
OLS	Ordinary Least Square
PP	Philips and Perron
SIJORI	Singapore-Johor-Riau Growth Triangle
SOE	State- owned enterprise
TRAN	Transportation Cost
VECM	Vector Error Correction Model

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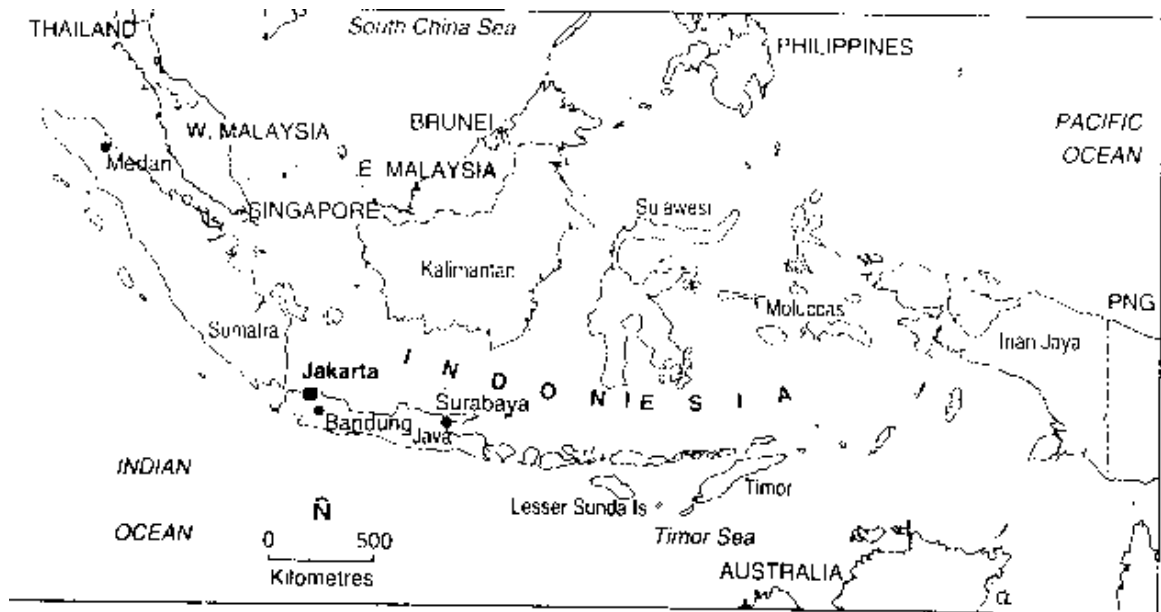
CHAPTER ONE

INTRODUCTION

1.0 Introduction

The Growth Triangle brings a concept into equality cooperation in economic development among the three ASEAN countries. It comes from the explanation of holding a role player in trade with the closer ways between the countries. Growth triangle builds with an objective to strengthen the economic links in some areas and works friendly to achieve optimize requirement between the three neighboring areas. They might groups together with some internally or externally reasons in term of economically, politically or miscellaneous relationship.

Growth triangle started with the groups of SIJORI Growth Triangle which published in 1989 by Singapore Deputy Prime Minister Goh Chock Tong. During the time, SIJORI Growth Triangle is only a partnership between Singapore, Johor (Malaysia) and Riau (Indonesia) areas where holding each other in some competitive trade activities purpose. Meanwhile, there are lots of insufficient in infrastructure, capital, labor resource and land. However, there are against attract others countries to work as partnership and work corporately toward their abundance of resources such as IMT-GT and BIMP-EAGA in ASEAN.



Source: Asia- Australia Survey 1997/98

Although there are work in pairs of trade activities but the strong linking forces among growth triangle are strengthen to more higher achievement of the economics countries'. However, gravity theory can be explain by the way in term of economics but not physics side; when heavy forces are connected mutually and generally work out together in either directly proportional toward their goods and services or inversely proportional to the distance between the areas. The archived news 5th September 2014 from Borneo Post online stated that Malaysia seeks to revival from the Indonesia-Malaysia-Singapore Growth Triangle to higher the efficiency of investment and reactive the flow of goods and services to succeed the goals or missions of growth triangle which play a very important part in the world.

1.1 Background of the study

1.11 IMS-GT

At the end of the Cold War has larger loosed their political pressure on between Asian countries and normally will get into a more internationally in the process of production and raise in vertical integration. During the competition occur always cuts across national and sectorial in earth sphere for trade. Therefore, it may shift the force from exports to an international production. There are some strategies development was marks a high rate to IMS-GT which are attract foreign capital and expending exports to encourage the high performance of economics growth and the maximum ability of social well-being in neighboring countries.

IMS-GT currently included Singapore, Johor, and areas of Riau in Indonesia areas and will later be expanded to include Negeri Sembilan, Malacca and Pahang state in Malaysia areas and west Sumatera, South Sumatera, Bengkulu, Jambi, Lampung and West Kalimantan in Indonesia areas. In short they named as SIJORI or Singapore-Johor-Riau scheme with the model of regional economic growth area. In this case, generally known that Johor has higher advantages in trade where proximity to Singapore. This means that was benefit to those broader growth areas of the growth triangle to drive up their trading in goods and services. As Tang and Hiroshi (1996) proposed "growth triangles" are unique Asian solutions to solve operational problems among the countries at different periods of economic development inclusive social and economic systems. Therefore, countries allowed to work together through growth triangle and specialize with an agreement.

In this study, the determinants of IMS-GT which affect the economy growth can be estimated by using the variables of real gross domestic product (real GDP), GDP per capita, transportation cost and foreign direct investment (FDI) in growth triangle between Indonesia, Malaysia and Singapore from 1983-2013. Generally, IMS-GT considered as a new growth triangle from these three areas which are Indonesia, Malaysia and Singapore. According to Ganesan (1998) explained the relationship between Singapore's and Malaysia was separated federation in 1965. In this sense, Singapore had failure played their main important areas in the politics, citizenship, technology and Services by bilateral relationship. Theoretically, economic growths can achieve as reach at an optimum performance for the countries' trade. The problem is how's growth triangle in IMS countries can raise up productivity and increase performance in economic growth at the same time.

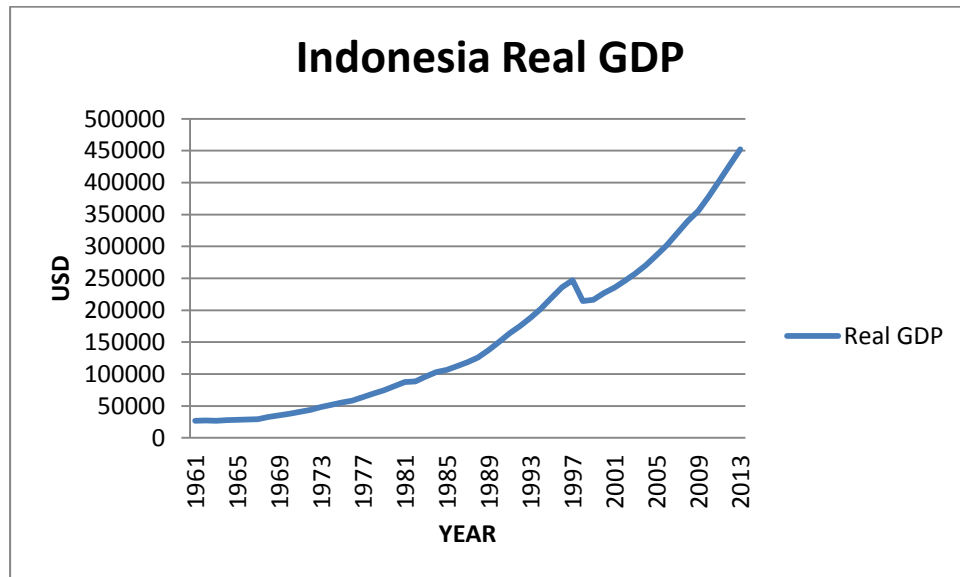
However Singapore was successfully achieved in sectors especially industrialization since 1965. Therefore, Singapore has considered as faster growth compared to its neighboring countries of Indonesia (especially in the case of Batam, Riau) and Malaysia (Johor) providing capital, technology and growing international production and market in the area. Beyond all than that, research mostly will related this topic of growth triangle with the formal preparation as in free trade agreements (FTAs) and work as closed economic system with others in past recent years. In the same time, IMS-GT was formally established on 17 December 1994 with the authorization of the MOU while the mission project was runs out to generate work together through close co-operation amongst members in the Asia.

1.11.1 Indonesia

Indonesia is one of the developing country and open market in ASEAN. As Sai (2007) stated Indonesia are challenging their migration in term of workers or technology cases where large established an export areas to increase or influence others part of country by explore more labor force in new industrial. Therefore, Indonesia has introduced to the three main economic sectors which are agriculture, industry and services to push their economy growth.

Generally, Indonesia is a country achieved high economic potential in internationally community. Therefore, Indonesia was included in the part of BRIC countries which is Brazil, Russia, India and China. This shows the significant of the countries growth advance rapidly in emerging economy. Indonesia had experiences certain risks in previous years. Indonesia is a market which had their state-owned enterprises (SOE) and large private business groups play a significant role nowadays.

Figure 1.1: Growth Domestic Product (GDP, Constant 2005 US\$) for Indonesia from 1961 to 2013

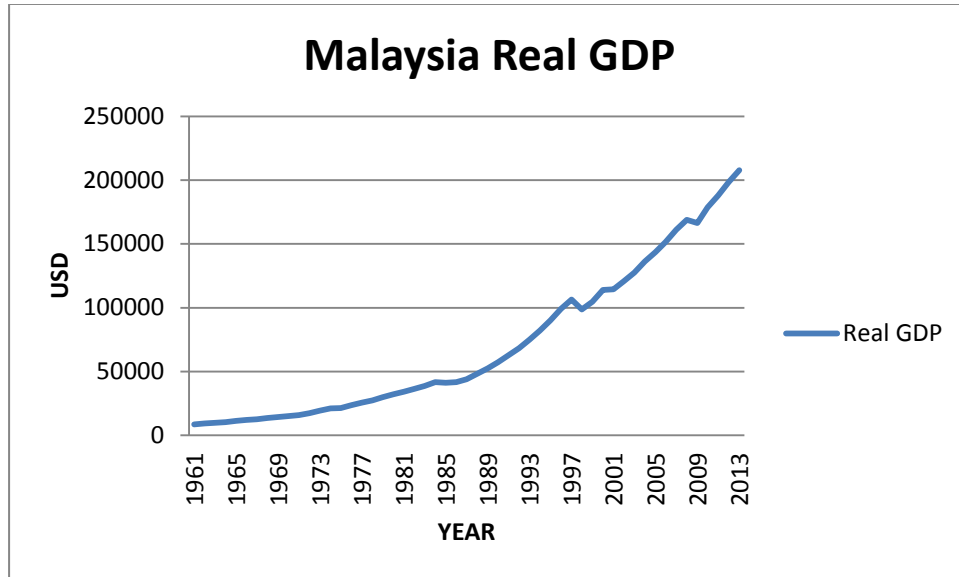


Source: world Bank, 2014.

In the figure above shows the Real GDP in Indonesia from year 1961 to 2013. There are growths dramatically from year to year but shocked drop in 1997 and 1998 due to the Asian Financial Crisis happened to country. As Tambunan (2010) stated that Indonesia has experienced Asian Financial Crisis started by mid-1997 and reached its peak in 1998 when suddenly a capital flight from the county which led its national currency, rupiah to depreciate significantly against the US dollar. This issue happens bring an impact to the market firm and a national economic crisis as well.

1.11.2 Malaysia

Figure 1.2: Growth Domestic Product (GDP, Constant 2005 US\$) for Malaysia from 1961 to 2013



Source: World Bank, 2014.

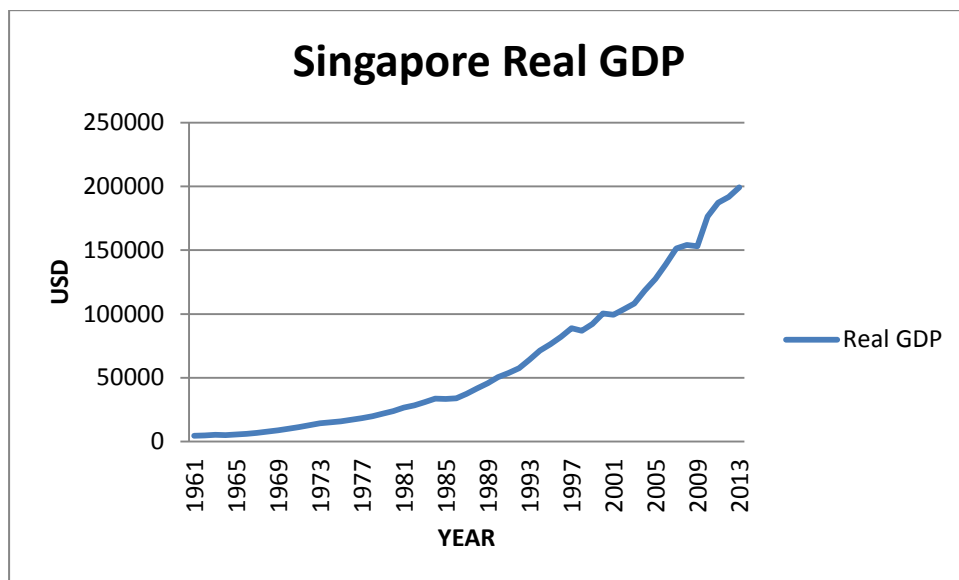
Malaysia was built in 1963 through a federation of the former British colonies of Malaya and Singapore including the states of Sabah from East Malaysian and Sarawak from northern coast of Borneo. While, Malaysia was independence in 1957 and growing with a relatively open state-oriented and industrialized market economy. According to the above graph shows that Malaysia was facing a sharp decrease in 1997 to 1998 and 2008 to 2009. As a general knowledge, during 1997 was having the Asian crisis seriously toward economy activities while 2008 Sub-Prime Mortgage Crisis happened toward economy. However, from the previous research, Malaysia has play a role in international trade due to the reasons of larger producer in tin, rubber and palm oil in the world. According to Ping & Yean (2007)

stated that government take part to stabilize economy and play a major role in export manufacturing sectors especially electronics.

Malaysia has achieved the cooperation among the people in the country with difference religion, ethics, traditional and language. Besides, Malaysia is lives with a larger population since increasing the growth rate in fertility year by year.

1.11.3 Singapore

Figure 1.3: Growth Domestic Product (GDP, Constant 2005 US\$) for Singapore
from 1961 to 2013



Source: World Bank, 2014.

According to the graph above, Singapore showed dramatically increase throughout the years. While, in 1984 to 1985, 1997 to 1998 and 2008 to 2009 was fall in Singapore gross domestic product (GDP). These happened affected by the Asian Global recession, Financial Crisis and Sub-Prime Mortgage Crisis happens in Asian to nation financial and economic growth.

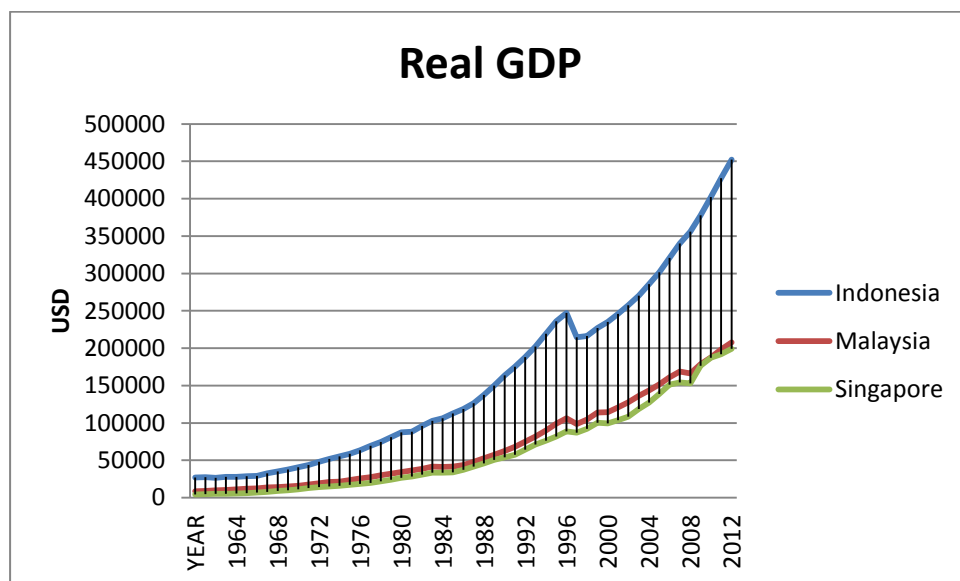
Singapore is a developed country in late 1970s century and plays a 2nd ranked out of 42 countries in the Asia-Pacific region. The issue shows that after independence in 1965, Singapore began to avoid from the war dependence trading on goods and services from foreign countries. As Lam (2000) studies that before and after war at 1960, Singapore gained self- government from Britain and developed into entrepots and brought with them in civil administration, entrepreneur and technological sector in economy. Singapore is major in manufacturing sector such as electronics and chemicals. Besides that, Singapore also growth rapidly in industry which can attract many tourist and investment to inflow their cash flow to beneficial country'.

Meanwhile, government had regulated the rules in the country for short-term and long-term economy. Difference stages and levels of development in their own countries have generally linkage between each other. In term of political or economic relation, Singaporeans have faced the independence in covers or fears in the sectors. Majority, business sectors was worked by Chinese population in the country with an effective and efficient in industrial production. As Goh (2002) dedicated that the global opportunities offered by free trade since early 1990s, Singapore's forms were facing the highly productive and capital-intensive industries

to create more opportunities in the market. This was dedicating to double the income per capita and gain more revenue to the country income.

1.2 Growth Domestic Product (GDP) in IMS –GT

Figure 1.4: Growth Domestic Product (GDP, Constant 2005 US\$) for IMS-GT from 1961 to 2013



Source: World Bank, 2014.

Figure 1.1 shows the Real Growth Domestic Product (GDP) for IMS-GT from 1961 to 2013. Basically, Real GDP is a measurement to summaries economic well- being of a society and the standard of living in a country at constant year. Theoretically, there's one way to calculate a nation' GDP which is sum up all the expenditure in the country. Types of expenditure as follow:

$$\text{GDP} = \text{Consumption} + \text{Investment} + \text{Government Purchases} + \text{Net Export}$$

From the graph above shows, start from 1961 to 1997 there are increase dramatically year to year for IMS-GT. Based on this statistically data, government of IMS-GT conducted and imposed rules and regulation in expenditure and export factors over the last decade. Indonesia pay attention in industrialize production and increase in population. Malaysia was concern the problem lack of labor skill, low productivity and low average income distribution among the employees meanwhile, Singapore was faced the problems of lack in population and limited demand in labor force. IMS-GT has stable market development among the period of years is fully supported by government in social and politically.

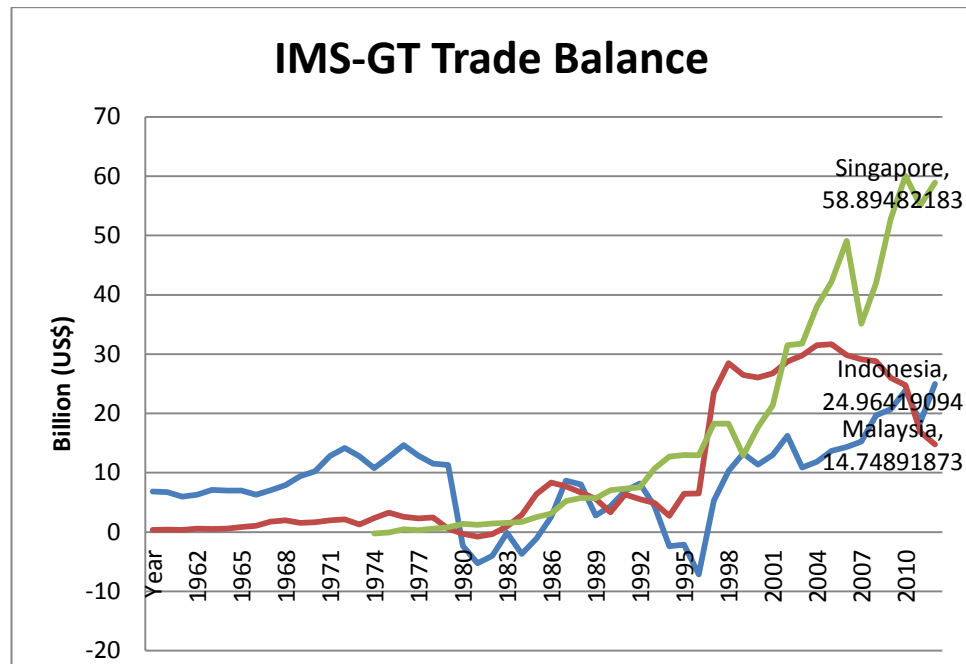
However, during 1997 to 1998, Indonesia facing the sharply drop from 247003US\$ to 214579US\$ due to the Asian Financial crisis hit to the country affects social and political crisis happened toward the economy growth. This crisis happened during the period of 1997 to 1998 bring up worsened issue in Indonesia because ineffective in government policy. The Asian crisis began with Thailand's currency in July 1997 but soon the crisis spread to South Korea, Malaysia and Philippines and to a lesser degree to Hong Kong and Singapore (Siddiqui, 2010). After Asia Financial crisis, GDP in Indonesia has increased roughly due to regulation of rules and maintain the social and economic activities. Government policy becomes the main economy policy to encourage economic growth where import should charge in tariff or tax of goods and services. According to Reiny & Fredrik (2002) argued that economic difficulties in Asia began after the crisis when Thai government was forced to give up currency peg and allow baht to float on July 2, 1997. This financial crisis hit seriously toward the functioning of an efficient economy toward the Indonesia financial sectors. After the crisis direct impact to the

country, Indonesia stabilize their economy activities mainly due to domestic consumption.

During the 1997 to 1998 Asian Financial Crisis happened seriously toward ASIA countries, Malaysia was facing the economy crisis from 106382US\$ to 98553US\$ which dropped 7829US\$. The negative impact imposed to Malaysia economy during the crisis and international trade due to the reason of insufficient in government policies adopted in response to this global crisis. Therefore, consumer and investor leading to fall in spending, expenses, job losses, income and import or export activities.

However, Singapore was dropped slightly during the Asian Financial Crisis from 1997 to 1998 which is 88860 US\$ to 86883 US\$. Singapore was the lowest percentage in impaired this crisis happened toward the Asian structure. Singapore has strong in economic, social, political and technological to balancing their economy activities performance. Alan (2007) stated that Singapore own the economic ownership through remotely controlled oversea finance and harmonies state and market without allowing one to overwhelm the other's priorities. A short decrease during the period crisis, but overall for the GDP in Singapore do not devastate demand of investor work in trade balance.

Figure 1.5: Trade Balance (Constant 2005 US\$) for IMS-GT from 1960 to 2013



Source: World Bank, 2014.

Figure 1.5 shows the trade balance for Indonesia-Malaysia-Singapore from year 1960 to 2013. Trade balance for Indonesia, Malaysia and Singapore (IMS-GT) was dramatically fluctuation throughout the years. There are sharply decrease in year 1997 to 1984 in Indonesia which is 14.65 billion US\$ to -0.12 billion US\$ while Malaysia drop from 1979 to 1982 which is 2.49 billion US\$ to -0.78 billion US\$. For Singapore, there is a slight decrease in 1977 to 1978 which is 0.48 billion US\$ to 0.29 billion US\$. It means the export more than import for three of the country during period; three of the country gets the deficit in trade balance.

In the other hands, Singapore get the higher range in trade balance compared with Indonesia and Malaysia. Singapore increases their trade balances where increase their export and limit their imported goods and services. Singapore

government realized that existence of small domestic markets and the absence of local entrepreneurship was support by the larger foreign companies (Siddiqui, 2010). Therefore, Singapore tends to increase domestic product by the way increase their economy growth.

1.3 Problem statement

There are several growth model are connected in Asia-Pacific Economic Cooperation (APEC) in term of comparative, competitive trade and investment such as Indonesia-Malaysia-Thailand Growth Triangle (IMT-GT), Indonesia-Malaysia-Singapore Growth Triangle (IMS-GT) and Brunei-Indonesia-Malaysia-Philippines East ASEAN Growth Area (BIMP-EAGA). While these are not a fresh topics among the researchers was done their great efforts in research previously. However, there are huge numbers of journal articles not fully examine the current issue related to IMS-GT in Asian.

Basically, growth triangle brings an opinion of how they are work for some area which beneficially to their country' deficiency of goods and services by the flows exchange in foods, people and investment. Based on geographically, IMS-GT was allocated at Southern growth triangle in between three main country played an important role in achieve an optimum trade flows in ASEAN. All this time, what we can logically estimate the bilateral or even trilateral trade are close related to fulfill deficiency. Further investigation by French Scholar Francois Perroux (1950) shows the problem in IMS- GT is under performance in development economic growth even IMS-GT are closely participating members' in the past few years. Why this